

Extension of Positive Behavioral Interventions and Supports From the School to the Bus: A Case Study

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Abstract: Positive Behavioral Interventions and Supports (PBIS) is an evidence-based practice that has been shown to prevent and remediate challenging student behaviors, while concurrently improving academic outcomes. While the implementation of PBIS is a schoolwide process which involves multiple intensive trainings for all instructional and support staff, the vast majority of studies to date have focused on problem behaviors occurring within the school house, in either structured (e.g., classroom) or unstructured (e.g., playground) settings. This study extended the provision of common PBIS strategies and training components to bus drivers, with the goal of reducing challenging student behaviors during times of transit to and from school. Results revealed a substantial reduction of bus discipline referrals at the middle school level, while receiving high levels of satisfaction from both the bus drivers and school administrators. Additional findings and suggestions for future implementation are provided.

Student misbehavior is a common challenge that teachers and school staff have had to contend with for many years. In fact, behavioral issues are among the most common problems that teachers encounter throughout their careers (Onderi & Odera, 2012). Unfortunately, many of the more traditional punitive approaches implemented by schools to manage problem behaviors are ineffective given they (a) are reactive in nature and only implemented after the behavior occurs, (b) fail to teach appropriate alternative behaviors to students, (c) inadvertently reinforce a problem behavior, or (d) remove students who frequently misbehave from school (George, 2012). An alternative to using such ineffective strategies involves the implementation of Positive Behavioral Interventions and Supports (PBIS), which provides a framework to proactively layer behavioral supports at school for all students, with an emphasis on intervening prior to problem behaviors escalating.

Positive Behavioral Interventions and Supports

PBIS is based on the principles of applied behavior analysis, emphasizing the promotion of positive behaviors as an alternative to punitive type interventions (Solomon, Klein, Hintze, Cressey, & Peller, 2011). The effectiveness of PBIS is well documented among researchers in the field of education (Bradshaw, Reinke, Brown, Bevans, & Leaf, 2008; Horner et al., 2009; Horner, Sugai, Todd, & Lewis-Palmer, 2005). The application of PBIS is associated with improved academic and behavioral outcomes and consists of three tiers of supports, including primary, secondary, and tertiary level interventions.

Primary prevention. Primary tier interventions are implemented across all settings, staff, and students at a school. Interventions consist of defining and teaching behavioral expectations for students, developing and implementing a schoolwide incentive system for reinforcing appropriate student behavior, teaching socially acceptable

replacement behaviors, and the use of informed decision making that is linked to the collection of data related to student discipline (Lewis, Jones, Horner, & Sugai, 2010; Sugai, 2013).

Secondary tier. The second tier of intervention consists of targeted instruction and intervention strategies for students who fail to respond to primary level prevention interventions. Traditionally, the older the student body, the more students there are that require secondary level interventions. Estimates suggest that approximately 11% of elementary, 26% of middle, and 29% of high school students are considered to be at risk for poor behavioral outcomes, and require secondary level supports (Horner, 2007; Sugai, 2013). These interventions may include strategies such as social skills instruction in small group settings; increased time spent reviewing expectations; check-in check-out procedures; and the development of function-based support options, such as providing contingent access to adult attention or peer attention, opportunities to avoid nonpreferred activities, and providing students choices (Lewis et al., 2010; Sugai, 2013).

Tertiary tier. The tertiary tier of intervention is designed for students who require the most intensive level of supports available. Students within this tier entail approximately 1% to 5% of the school's population and represent those individuals who have not responded to either primary or secondary level interventions. Instruction and intervention efforts are directly related to the student's needs and supports and may include the development of a functional behavioral assessment, behavior intervention plan, and the provision of wraparound services (Lewis et al., 2010; Sugai, 2013).

Efficacy of PBIS in Schools

For the past several decades PBIS has established itself as an effective evidence-based intervention for reducing maladaptive behaviors and is currently being implemented in over 16,000 schools nationwide (Sugai & Simonsen,

2012). While the school day tends to involve a highly structured experience for students in which instruction is the primary emphasis, a large proportion of problem behaviors take place outside the classroom, in common areas that are relatively unstructured such as the playground and hallway, which can make problem behaviors more likely (Newcomer, Colvin, & Lewis, 2009).

While the implementation of PBIS is a school-wide process which involves multiple intensive trainings for all instructional and support staff, the vast majority of studies to date have focused on problem behaviors occurring within the school house, in either structured (e.g., classroom) or unstructured (e.g., lunchroom) settings. This study extended the provision of common PBIS strategies and training components to bus drivers, with the goal of reducing challenging student behaviors during times of transit. This research was conducted to evaluate the effectiveness of extending common elements from a PBIS framework to school buses at a middle school that historically had above average rates of bus referrals.

Method

Participants and Setting

Bus discipline referrals were collected at a rural middle school located in a large district in the Southeastern United States. The school was classified as a Title I Priority School, which placed it in the lowest 5% of student achievement among all Title I schools in the state. It served approximately 500 students, whose demographics consisted of an equal distribution of males and females—35% Caucasian, 34% African American, 30% Hispanic, and 1% of students from other ethnicities. The school also employed 39 teachers and seven bus drivers.

Research Design

An A-B-A-B reversal design was used for this study, which is a rigorous experimental design that includes an initial baseline phase, an intervention phase, a withdrawal phase, and a reintroduction of the intervention phase (Barlow, Nock, & Hersen, 2009). During the baseline phase, school administrators and bus drivers engaged in traditional disciplinary practices which entailed suspending students from the bus, use of afterschool detention, providing a warning, or contacting the student's parent. The intervention phase consisted of a treatment package that included (a) bus driver and administrator trainings, (b) development and communication of expectations to students, (c) an interdependent group contingency reward, and (d) contingency contracting for nonresponders. The following section provides details pertaining to each of these components.

Bus driver and administrator trainings. To promote the use of positive behavioral practices on school buses, drivers received a sequence of 8 one-hour trainings over the course of 8 weeks that presented concepts common to PBIS implementation at the school level. School administrators attended four of these sessions. Content of the trainings included (a) teaching drivers how to acknowledge

appropriate behavior, (b) the importance of using positive reinforcement immediately following the occurrence of a desirable behavior, (c) teaching drivers how to establish clear expectations for all students, (d) the proper ratio (4 to 1) of positive to negative interactions, (e) teaching drivers about student perspectives and challenges that they may encounter, (f) reviewing how to effectively respond to challenging behavior, and (g) providing examples of how to make personal and professional connections with students. At the conclusion of the aforementioned training, drivers participated in monthly small-group meetings, which included a researcher from this project and a school administrator, to discuss progress and to develop strategies to address specific student behaviors.

Development and communication of expectations.

Bus drivers were provided with a basic behavior expectation framework that mirrored rules from the student handbook (e.g., always prioritize safety, be respectful towards others, and use self-control). Drivers were then asked to creatively and collaboratively adapt the expectations to best meet their needs. After expectations were finalized, they were shared with students by posting visual displays inside of all buses, and in the area of the school where students entered and exited buses (see Figure 1). For the first week of intervention implementation, and prior to departing from school each afternoon, bus drivers reviewed expectations with students on a daily basis. For the second week, expectations were reviewed on three days (Monday, Wednesday, and Friday). For the third and subsequent weeks, expectations were reviewed once per week on the first day of the week.



Figure 1. Displayed expectations on the school bus.

Interdependent group contingency. An interdependent group contingency was used in this research, which is defined as a system of reinforcement that requires all members of a group to meet a certain criterion before any member earns a reward (Lewis, Powers, Kelk, & Newcomer, 2002). Hence, students on each bus worked as a team to earn points for their bus. Buses could earn 2 points per day, or one point for every trip to or from school when the driver did not issue a discipline referral to a student for inappropriate behavior. Once a bus accumulated 20 points, a celebration occurred in which all students and drivers on that bus were rewarded for their accomplishment. School administrators selected the reward based on student requests and feedback. Rewards included numerous desirable activities, such as pizza parties, dress-down days (i.e., student uniforms were replaced with appropriate traditional attire), and a live DJ who played music for students in the gym. Additionally, a separate celebration occurred once per month for the two buses that received the most points each month; this celebration often consisted of a frozen yogurt party in the cafeteria. Bus drivers were permitted and encouraged to participate in all celebrations with their students. The accumulation of points that each bus earned at the school was graphically depicted, placed at a prominent location within the school, and updated on a daily basis.

Contingency contract. Students who exceeded two bus referrals in a 9-week grading period were placed on an individual contingency contract. This contract represented a formal “good behavior” agreement between the student and principal and was signed after a meeting with the student to discuss behavioral expectations, rewards for appropriate behavior, and consequences for continued misbehavior. Students on individual contracts were excluded from the interdependent group contingency, and their behavior did not prevent the bus from obtaining a point for any given ride. Students needed to complete four weeks without a bus discipline referral to exit from the contingency contract.

Withdrawal Phase

The withdrawal phase was conducted to evaluate if behavior changes were related to the intervention, rather than an unknown or uncontrolled confounding variable. During this phase, noncontingent reinforcement was provided to all students on all buses (e.g., every bus earned points, even if one or more students received a bus referral). This form of reinforcement was provided, instead of an absolute withdrawal in which the incentive system was removed entirely, due to fears that removing the incentive system would be disruptive for students and may result in an influx of bus discipline problems. Moreover, use of noncontingent reinforcement in this manner is acceptable and has been documented in other studies when complete withdrawal was not practical or appropriate (Barlow et al., 2009).

Dependent Measures

During all phases, data were collected on bus discipline referrals for all students at the school. Bus discipline

referrals were collected during eight months of the school year and were analyzed by calculating an average daily number of bus discipline referrals per week at the school. Calculations were made by dividing the number of referrals received during the week by the number of days in that week. One week was defined as a standard school week (e.g., Monday through Friday) that comprised at least three full days.

Social Validity

Driver and school administrator satisfaction was evaluated at the end of the study using two separate questionnaires. Drivers were asked questions related to their satisfaction of the trainings and the effectiveness of positive behavioral strategies that were provided using a 5-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). School administrators were asked questions related to the effectiveness and utility of the trainings and intervention strategies. Satisfaction across drivers and administrators was calculated by averaging the numerical scores that they provided in response to each question on the questionnaire.

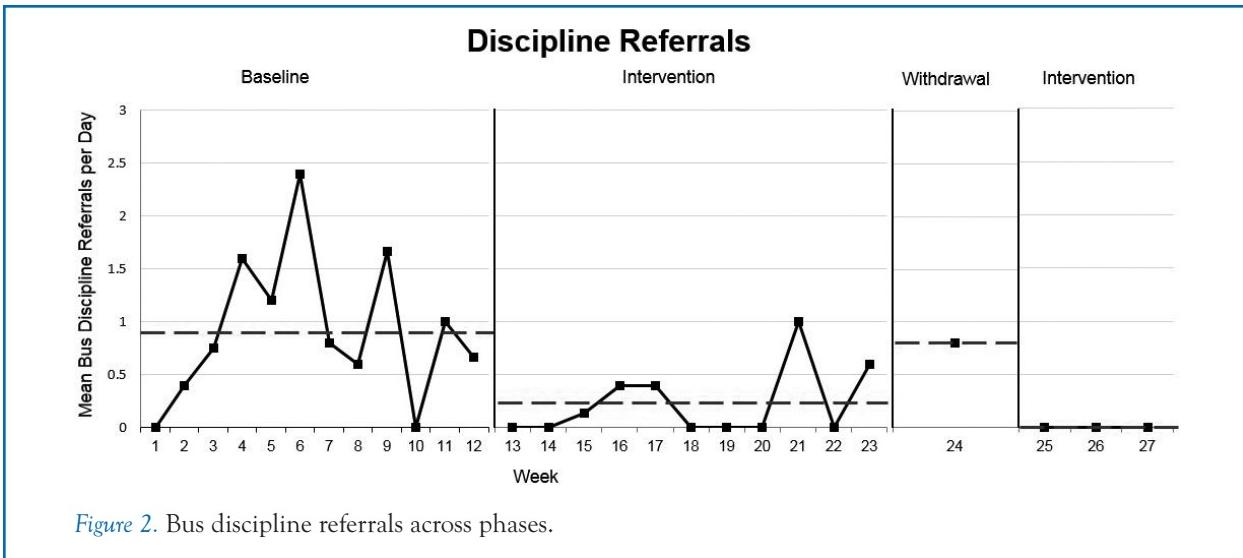
Procedural Fidelity

Procedural fidelity refers to the extent to which the intervention is implemented as it was designed (Cooper, Heron, & Heward, 2007). Throughout the intervention phase of this study, data related to procedural fidelity were collected on 25 occasions (comprising 20% of all school days, which resulted in 108 unique records) by a research assistant on the following components: (a) incentive system implementation, (b) visual display updated on a daily basis, (c) school administrator providing positive feedback about student behavior on buses to students and drivers at least once per week, (d) drivers reviewing expectations with students, (e) drivers answering questions from students about expectations, and (f) drivers using a positive and supportive tone and language when discussing expectations and answering questions from students. Procedural fidelity was calculated by dividing the number of correctly implemented components by the sum of correctly and incorrectly implemented components, and then multiplying that value by 100. Overall procedural fidelity for this study was 93.5%.

Results

Bus Discipline Referrals

Overall, the implementation of PBIS on the district school buses resulted in a dramatic reduction in the number of disciplinary referrals in respect to the change in level, mean, variability, and effect size. A change in level refers to the shift or discontinuity of performance from the end of one phase to the beginning of the next. Figure 2, which illustrates the average number of daily referrals per week, shows that following each respective shift from the baseline to intervention phase, there was an immediate and large corresponding decrease in the number of discipline referrals. When the intervention was first introduced there was an immediate reduction of 0.7 discipline referrals, which was followed by a slightly larger reduction (0.8) when



the intervention was implemented again for the second time. In addition, there was a substantial reduction in the average number of discipline referrals across phases. The mean number of daily disciplinary referrals was effectively reduced from 0.9 to 0.2 referrals per day during the first intervention phase, and then from 0.8 to none (0) the second time it was introduced. There was also a reduction in the variability of disciplinary referrals between the baseline and intervention phases. The range of disciplinary referrals was much greater (0 – 2.5) during the baseline phase than during the intervention phase (0 – 1). Last, effect size was calculated using points exceeding the median (PEM) which measures the percentage of data points exceeding the median of the baseline phase. PEM scores range from 0 to 1.0, with a score of 0.9 or higher indicating a highly effective intervention, 0.7 – 0.89 represents a moderate or fair effect, 0.5 – 0.69 indicates a mild or questionable effect, and anything less than 0.5 is considered to be an ineffective intervention (Ma, 2006). PEM calculations across the intervention phases were 0.91, and 1.0 respectively, indicating PBIS was a highly effective intervention for reducing disciplinary referrals on school buses.

Social Validity

Consumer satisfaction surveys completed at the conclusion of the study showed bus drivers found PBIS interventions were (a) very helpful, (b) easy to implement, (c) something they would continue using in the future, and (d) something they would likely recommend to other colleagues. Specific comments from the drivers were very positive, with one driver remarking, “I like very much when we get together at the school and discuss solutions to what we face each day. The help has been greatly appreciated and I have learned a lot.” Similarly, the school administrators reported PBIS provided several tangible benefits, including (a) being very beneficial to the bus drivers, (b) increasing positive student behaviors, and (c) enabling the bus drivers

to become more involved with school community. One principal stated:

I believed the best part of this program was the professional development for the drivers. Drivers are the first and last person to see our students and they need to be involved in contributing to the school's climate. Many of the drivers were very appreciative of the trainings that were offered and I observed them using the strategies.

It is worth mentioning, however, that the administrators did report the intervention was not easy to initially implement.

Discussion

Previous research has established PBIS as an evidence-based practice that has been shown to prevent and remediate challenging student behaviors, while concurrently improving academic outcomes. This research extended the provision of common PBIS strategies and training components to bus drivers with the goal of reducing challenging student behaviors during bus transits before and after school. Results supported the use of PBIS in reducing disciplinary referrals outside of a traditional educational setting.

Limitations and Future Research

Study results should be interpreted with the understanding of limitations. This study was performed with only one school in the Southeastern United States. Because of the small sample size, results should not be assumed to generalize to all schools. External validity could be increased through research with additional schools. It is also recommended that future studies continue to investigate the efficacy of PBIS in other types of educational settings outside the classroom (e.g., before- and afterschool programs).

Conclusion

Overall, this study showed that PBIS training provided immediate and substantial reductions in discipline referrals aboard school buses. Large effect size gains combined with high levels of consumer satisfaction indicate PBIS is a promising intervention for managing problem behaviors outside of the traditional school setting. One of the principle benefits of implementing PBIS on school buses is to reduce challenging behaviors and to preemptively improve appropriate behaviors during times of transit for students at school. Students engaging in challenging behavior often receive discipline referrals, which may lead to temporary suspensions from the bus and limited opportunities to attend school if the families do not have alternative methods of transportation available. Accordingly, promoting positive behavior in the bus setting is paramount, especially for those students at risk of school failure.

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